

ARMY GROUND RISK-MANAGEMENT PUBLICATION

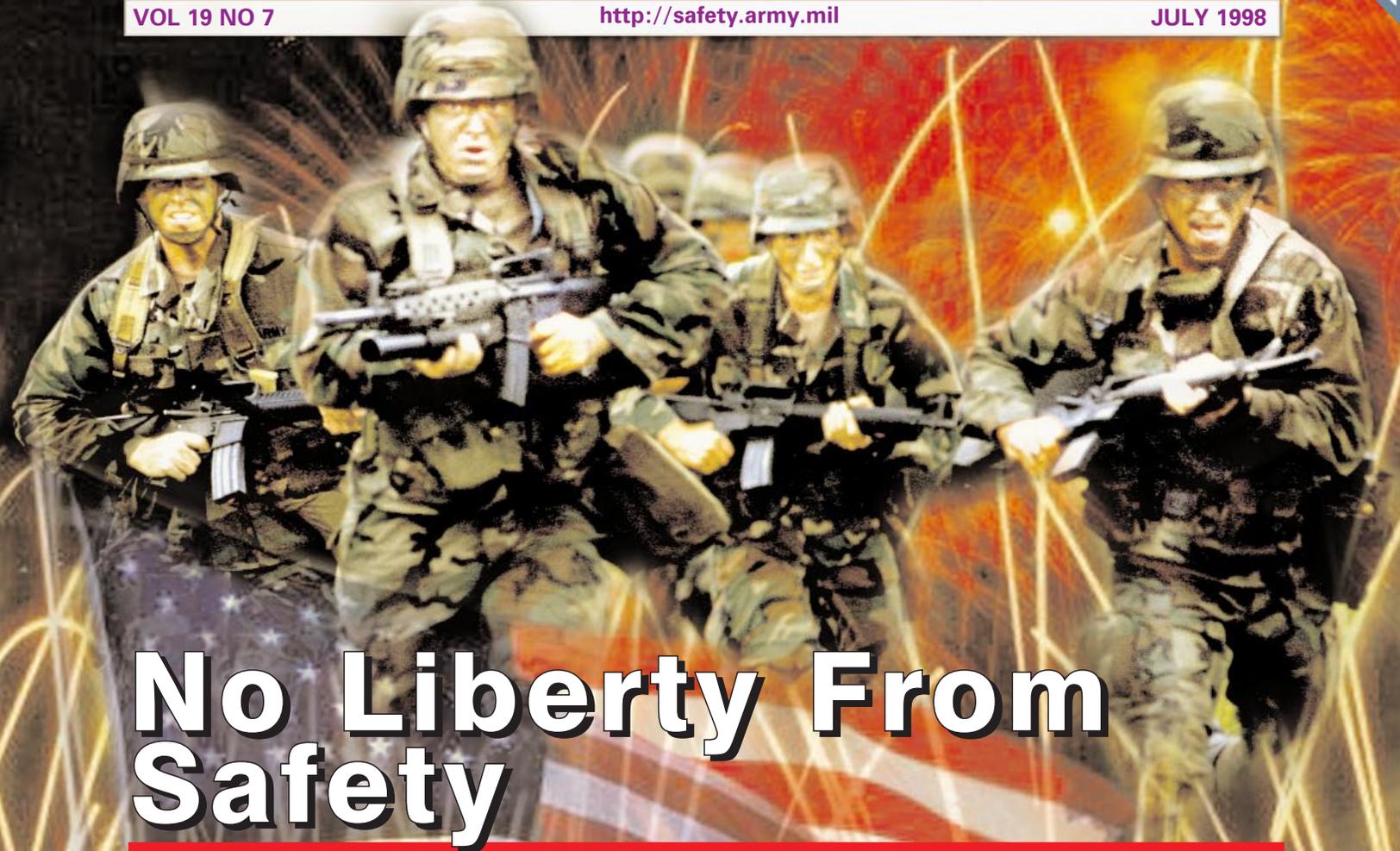
# COUNTERMEASURE

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JULY 1998

POV update  
POV FATALITIES  
80 THRU MAY FY 98  
57 THRU MAY FY 97



## No Liberty From Safety

**I**ndependence Day—a time when we Americans celebrate our rights and freedoms with friends and family. Don't let accidents and injuries put a damper on fun, be mindful of the inherent dangers of fireworks and pyrotechnics. Follow established safety procedures to make sure festivities are free from hazards, lest our tribute turns into tragedy.



Commanders and other leaders need to take note that POV fatalities are on an upward trend from this same time last year. What is your installation doing to reverse this trend? This is leaders' business at every level of our Army.

—BG Burt S. Tackaberry, CG, U.S. Army Safety Center

ARMY GROUND RISK-MANAGEMENT PUBLICATION  
**COUNTERMEASURE**

**The Official Safety Magazine  
 for Army Ground Risk-  
 Management**

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**Burt S. Tackaberry**  
 Brigadier General, U.S. Army  
 Commanding Officer

# Director's Corner



It's a fact of life—virtually everything the Army does involves taking risks. From flying helicopters, driving tanks, and working with explosives to working in an office, we deal with risk every day. This month, *Countermeasure* focuses on an extremely risky business—explosives.

Our explosives safety program is based on AR 385-64 and provides force protection guidance for commanders. It sets explosives safety standards to protect military and civilian Army employees, the public, facilities, equipment, and the environment.

I have stated before, "People make safety happen." As the Director of Army Safety (DASAF), I want to give you the tools necessary to be safe in all phases of your life—on duty and off. I want to develop a closer relationship between the U.S. Army Safety Center (USASC) and the businesses of explosives safety, occupational health, and environmental protection. This is important to the overall mission of the Army.

Explosives safety is a critical part of the Army Safety Program. We have had a very good safety record in the explosives area; however, we cannot afford to rest on our laurels. We must strive to improve it. The task of providing a safe and healthy workplace is one that requires dedicated effort from everyone. This includes not only supervisors and employees at the first level, but every manager and technical support person. Halfway measures have no place in a program that deals with the safety and well-being of our workforce.

Workplace safety and health programs, especially when explosives and other hazardous materials are involved, must be in-depth and based on good planning and execution. Whenever we experience an incident, people are often killed, disabled, or severely injured. The loss of a single person is unacceptable.

The responsibility for keeping a solid Army Safety Program in effect is not mine alone. Each of you owns a share of the program, and you must do your part with skill and dedication on a day-to-day basis—as I know you do. Nothing short of a total team effort will do, and I will do everything I can to help the team be successful.

—BG Burt S. Tackaberry, Director of Army Safety

# Pyrotechnics

**A**s part of a field training exercise, a unit was performing the task: “React to aerial flare with warning.” The flare was launched in a near-vertical attitude. But shortly after launch, it suddenly changed direction and headed toward a column of soldiers. After flying over 150 feet, it struck a soldier in the left side of the face, passed through the soldier's mouth, and exited the right side of the face. It then continued another 25 feet before stopping.

In another incident, a soldier took a simulator to his barracks room after a field exercise. The soldier was examining the device in his hands when he mistakenly pulled the igniter. When the device detonated, it left 2nd and 3rd degree burns on the soldier's face and hands.

During another exercise, a soldier, after finding a good position, started to improve its location to provide better cover and concealment. In the process of removing rocks and debris, the soldier unknowingly unearthed an antitank weapon effects signature simulator (ATWESS) that was left by a prior unit. When the soldier placed another rock on top of it, the ATWESS detonated. The soldier received 2nd degree burns to his hands.

Since the beginning of FY 96, there have been 36 accidents involving pyrotechnics – 39 injuries, over \$470,000 in injury costs, 408 lost work days, 159 days of hospitalization, and 882 days of performing in a restricted capacity.

These explosives accidents account for 46 percent of all explosives accidents in FY 96 and 44 percent in FY 97. So far in FY 98, one of five explosives accidents has involved pyrotechnics. Pyrotechnics include simulators (grenade, artillery, and mortar), booby traps, ATWESS, Hoffman Device, flares and signals. These devices rarely cause fatalities (2 in the last 10 years), but do result in an expensive loss of manpower.

**Simulators and Flares.** These devices were the most prevalent in all the reported pyrotechnic accidents (53 percent). The major errors were attributed to improper handling and unauthorized use. Causes for improper handling include: cooking off the device, improperly applying an electric current to the detonator, and picking up DUDs. Types of unauthorized use include taking them home, throwing them in the vicinity of other soldiers, and opening them and

igniting the powder. Other hazards caused by simulators are gravel, sticks and burning paper thrown from the explosions and detonations. The ‘safe area’ for personnel is 15 meters for grenade simulators and 35 meters for artillery simulators.

**Booby Traps.** The major problem with these devices is although they are similar to other simulators in appearance, they react differently when ignited. They can be easily confused by someone who is not familiar with them. Leaders must ensure that only trained soldiers handle these types of devices. These devices should never be activated by hand or placed by a fire hazard (dry grass or leaves). They can injure personnel within 6 feet. Do not use tape or wire when securing booby traps to surfaces, only nails.

**ATWESS.** The majority of these accidents involve handling unexpended devices. This device contains a magnesium photoflash compound and should be disposed of properly. Instead, they are often discarded by being buried or placed in MRE bags. Soldiers are injured by accidentally digging them up or picking them up during police call. Another problem is soldiers are in the back blast area. Never stand behind the ATWESS when it is being loaded, armed or fired. The ATWESS is also known to fire when dropped. In case of a misfire, place the arming lever to safe before removing the cartridge. If the primer is dented, return it to be disposed of properly. If it is not dented, repeat the proper loading instructions.

**Hoffman Device.** Like the ATWESS, this device contains a magnesium photoflash compound. It burns faster than gunpowder and generates extremely high temperatures. Over half of the accidents involving this device occur when someone attempts to disassemble, cut open, modify or hand ignite it. It is important that this device only be used for what it was intended. Personnel should stand behind this device at all times. Ensure there are no personnel within 50 feet when firing. Be sure to follow the misfire procedures exactly as shown in the instructions.

## General guidelines for all pyrotechnics

- Wear appropriate leather safety gloves when handling these devices.
- Do not modify or tamper with any device.

- Never throw or point any device at people or equipment.
- Don't place any device near a fire or other heat source.
- Don't pick up any DUDs - Treat as Unexploded Ordnance (UXO).
- Never cook off the device.
- Never mix different types of pyrotechnics in the same container.
- Always read the instructions for each device.

Leaders can lower the risks of an accident occurring by setting safety standards for handling these devices through appropriate SOPs. There should always be positive inventory control to reduce tampering and unauthorized use. Leaders should ensure only trained personnel handle these devices. Avoid the UXO, send a spot report as fast as possible, and clearly mark the area.

Proper safety must be stressed at all levels of command. Safety briefings should cover instructions, demonstrations, and the dangerous

features of each device. Too many soldiers fail to realize that pyrotechnics are dangerous. They are not toys, firecrackers, or souvenirs. They are real, and they cause real injuries. There is no substitute for following correct procedures. Any deviations from these proven procedures can be catastrophic.

### Publications dealing with pyrotechnics

AR 385-63, *Policies and Procedures for Firing Ammunition for Training, Target Practice and Combat*

AR 385-64, *Ammunition and Explosives Safety Standards*

FM 23-30, *Grenades and Pyrotechnic Signals*

TM 9-1370-206-10, *Pyrotechnic Signals*

TM 9-1370-207-10, *Pyrotechnic Simulators*

TM 9-1370-208-10, *Photoflash Cartridges and Surface Flares*

GTA 9-12-1, *Unexploded Ordnance Procedures*

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## The Rockets Red Glare . . .

**A**h, summer...blue skies, glorious sunshine, the sizzle of hotdogs on the grill, the laughter of children dashing through the sprinkler. The Fourth of July will soon be here—a time when we Americans celebrate our rights and freedoms with friends and family. The food, music, and camaraderie are great, but the highlight of the celebration would be missing without the fireworks.

We pay tribute to our country and founding fathers when we celebrate this national holiday with such fanfare. However, we need to be mindful of the inherent dangers of fireworks, lest our tribute turns into tragedy.

**The safest way to enjoy fireworks is to leave the fireworks displays to the professionals. However, if you decide to have your own fireworks display, make sure they aren't illegal in your state or local area and use these safety tips to make sure your Independence Day is free from hazards:**

- 🔥 Always read and follow instructions for each device.
- 🔥 Do not allow children to light fireworks.
- 🔥 Fireworks should only be lit outdoors, away from structures and any flammable materials.
- 🔥 Keep a water bucket or hose nearby for emergencies.
- 🔥 Do not modify, tamper, or dismantle fireworks or attempt to make your own.
- 🔥 Do not try to light fireworks that have malfunctioned (DUDs).
- 🔥 Do not throw or point fireworks at other people. Place them on the ground or a launch platform, light them, and get away as fast as you can.
- 🔥 Do not place or light fireworks inside a metal or glass container or near a heat source.
- 🔥 Store in a cool, dry place and out of sight of children.
- 🔥 Dispose of properly. Soak DUDs with water, pick up with a shovel, and throw away.

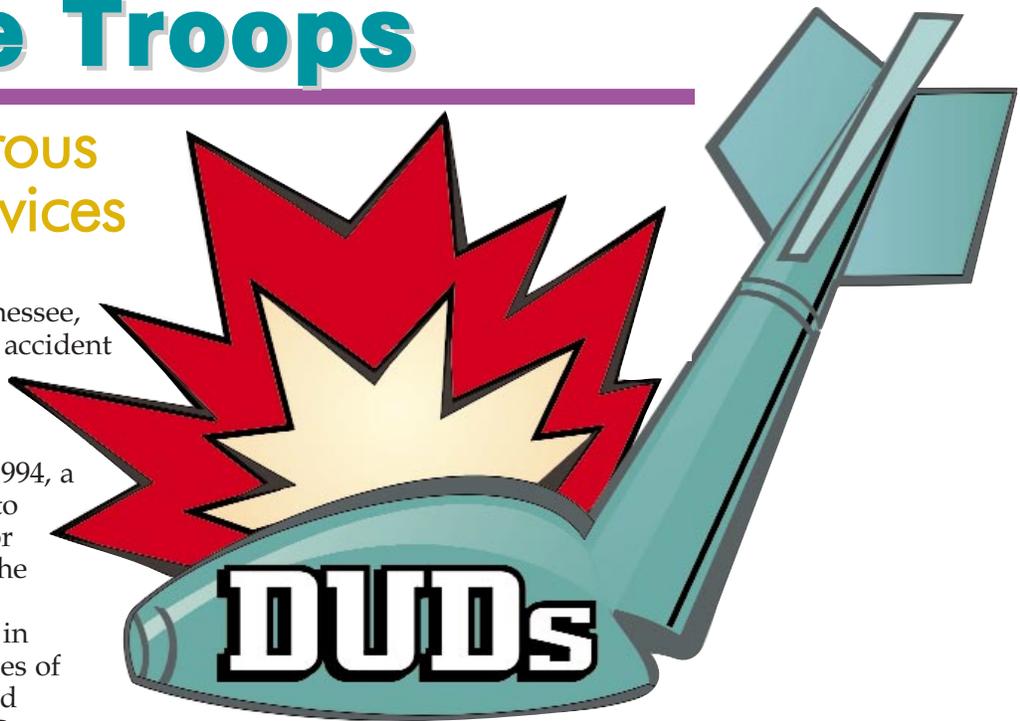
# From the Troops

## DUDs—Dangerous Unexploded Devices

In April 1995, Memphis, Tennessee, was the site of an explosives accident when two 40mm grenades (one high explosives and one smoke) detonated and left five children injured. In September 1994, a soldier was at home attempting to disassemble an artillery simulator when it functioned and injured the soldier.

What do those incidents have in common? These are two examples of explosives accidents that occurred because items thought to be DUDs were picked up as souvenirs or toys at active and inactive training areas and ranges of military bases. These items may appear insignificant, harmless, or entertaining. They are not. DUDs are explosives devices that have been fired, but have not exploded. Unexploded ordnance (UXO) of all types can be found on impact ranges and training areas. DUDs may be in areas adjacent to ranges and training areas. Grenades, blasting caps, illumination signals, simulators, and a host of other ordnance may not have functioned as originally intended. Picking up DUDs can cost a person a hand or a life. DUDs can explode at any time, especially if handled or moved.

There are many active and inactive training sites and impact ranges that are accessible to the public. Today military bases are often open posts. Visitors can travel in many areas without restrictions or escorts. Facilities that have closed may have former training ranges that still need to be cleared of UXO. Access



to these areas may be as easy as walking over an installation boundary. The training and impact sites may not be fenced and monitored on a continuous basis, but are usually well marked with signs. These signs warn of the dangers and forbid unauthorized entry. Often, these signs are ignored with devastating consequences.

One simple rule should be followed when a person finds a DUD. **DO NOT TOUCH!** If there is one DUD, realize that others may be in the area. Be careful when leaving the area. Contact the military police or fire department. Most military installations with an active training range have Explosive Ordnance Disposal (EOD) units who dispose of unexploded munitions. EOD personnel are often dispatched to locations where DUDs are found to help in disposing of the dangerous items.

**POC: Mr. Richard Albrecht, U.S. Army Technical Center for Explosives Safety, Savanna, IL, DSN 585-8807 (815-273-8807).**

**Warn your personnel of the potential hazards of handling unknown objects on ranges, whether they look like DUDs or not. Be sure to include these warnings in range safety briefings, orientations for contractors and new personnel, and even see that notices are sent to installation family housing.**

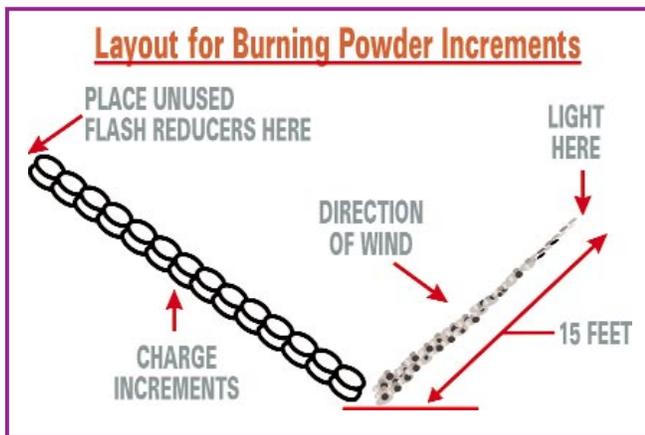
# Propellant and Powder

## They're Unforgiving

Everyone gets a kick out of watching things burn. It is a natural curiosity that consumes people's interest. Unfortunately, fire is unpredictable and often uncontrollable.

Artillery and mortar units that burn unused propellant charges and powder increments are supposed to follow strict guidelines when it comes to burning excess increments.

FM 6-50 is very clear in spelling out the proper procedure for conducting this type of operation:



(1) Select a burning site at least 200 feet from grass and loose debris as well as personnel and equipment.

- (2) Determine the direction of the wind.
- (3) Place charge increments in a single layer row not more than 12 inches wide.
- (4) Arrange the row so that the powder will burn into the wind.
- (5) Lay a train of combustible material about 15 feet long, perpendicular to, and at the downwind end of the row of charge increments. Light this train at the end farthest from the increments.

Unfortunately, the following accidents illustrate what happens when soldiers get complacent:

• A soldier was preparing to burn powder after receiving a movement order and did not follow proper procedures. He burned the propellant with the wind blowing towards him and suffered 2nd degree burns to almost half his body.

• In another instance, some foreign soldiers spread propellant on a beach in close proximity to an 8-foot sea wall and initiated the burn with incendiary grenades primed with non-electrical blasting caps. Subsequently, a mass detonation occurred and blew the sea wall up and caused property damage to nearby homes.

• Not long ago, a soldier was burning powder IAW FM 6-50, and after testing the wind direction, he placed the powder increments in an east-west configuration. However, only one-

## Burning 155mm Powder Increments ...

<p>1</p>	<p>2</p>	<p>3</p>	<p>4</p>
Distance - 10 yds	20 yds	50 yds	100 yds

Distances indicated above are from the point photographs were taken.

third of the powder successfully burned. He then arranged a second burning. Without rechecking the wind, he ignited the remaining powder. The wind had since shifted to the north and forced the fire into a nearby tree line. A HMMWV that was parked in the tree line caught fire and was subsequently destroyed along with all the contents.

When conducting this type of operation, it is imperative to take all precautions and to follow FM 6-50 and SOPs to the letter. Remember, propellant and powder are unforgiving!

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# Traffic Safety

## Road Bullies

**T**raffic experts say there are more and more aggressive drivers on the road than in past years. Every day, drivers are facing more stress at work and at home and increasingly tougher and longer commutes. These drivers are pressed for time and caught in traffic jams, and they just don't want to waste time driving defensively.

Who are these aggressive drivers? It seems to be the high-risk drivers—the ones who are in a hurry and take chances. They dart in and out of traffic, speed, tailgate, cut you off, pass on the right, run stop signs and red lights, honk their horns, and give you the “rude finger” gesture, usually when it is their fault.

Some of these aggressive drivers are armed with the attitude that the new safety features on cars today will protect them—air bags, seatbelts, antilock brakes, pop-out windshields, child seats, reinforced doors, and collapsible steering wheels. Experts often say drivers take more risks and are more aggressive in their driving because of these “safety” features; however, they do not stop accidents!

### **WHAT TO DO WHEN CONFRONTED BY AN AGGRESSIVE DRIVER**

- ◆ Make every attempt to safely move out of the aggressive driver's way.
- ◆ Do not challenge an aggressive driver by speeding up or attempting to “hold your own” in the travel lane.
- ◆ Always wear your seat belt—not only will it hold you in your seat and behind the wheel in case you need to make an abrupt driving maneuver, but it will also protect you in an accident.
- ◆ Avoid eye contact with the aggressive driver.
- ◆ Ignore gestures, and refuse to return them.
- ◆ Report aggressive drivers to the appropriate authorities by providing a vehicle description, license number, location, and if possible, direction of travel.
- ◆ If you have a cellular phone, safely pull over to the side of the road and call the police.
- ◆ If an aggressive driver is involved in an accident farther down the road, stop at a safe distance from the accident scene, wait for the police to arrive, and report the driving behavior that you witnessed.

**Remember, when you are behind the wheel, you have assumed responsibility for yourself and for others. Resist the urge to drive aggressively or beyond your capabilities. Take your driving responsibility seriously. Lives depend on it!**

# Update

Effective 29 Apr 98, the Office of The Surgeon General updated the policy guidance for fluid replacement during training as follows:

## Fluid Replacement Guidelines for Warm-Weather Training (Average Acclimated Soldier Wearing Hot-Weather BDU)

Heat Category	WBGT °F	Easy Work		Moderate Work		Hard Work	
		Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour
1	78-81.9	No limit	½ qt	No limit	¾ qt	40/20 min	¾ qt
2	82-84.9	No limit	½ qt	50/10 min	¾ qt	30/30 min	1 qt
3	85-87.9	No limit	¾ qt	40/20 min	¾ qt	30/30 min	1 qt
4	88-89.9	No limit	¾ qt	30/30 min	¾ qt	20/40 min	1 qt
5	>90	50/10 min	1 qt	20/40 min	1 qt	10/50 min	1 qt

\*Rest means minimal physical activity (sitting or standing) and should be accomplished in the shade if possible.

**Note 1:** The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary  $\pm$  ¼ quart per hour.

**Note 2: CAUTION:** Hourly fluid intake should not exceed 1½ quarts. Daily fluid intake should not exceed 12 quarts.

**Note 3:** MOPP gear or body armor adds 10°F to WBGT Index.

### Examples:

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> <li>■ Weapon maintenance</li> <li>■ Walking hard surface at 2.5 mph, <math>\geq</math>30-pound load</li> <li>■ Manual of arms</li> <li>■ Marksmanship training</li> <li>■ Drill and ceremony</li> </ul>	<ul style="list-style-type: none"> <li>■ Walking loose sand at 2.5 mph, no load</li> <li>■ Walking hard surface at 3.5 mph, &lt;40-pound load</li> <li>■ Calisthenics</li> <li>■ Patrolling</li> <li>■ Individual movement technique; i.e., low crawl, high crawl.</li> <li>■ Defensive position construction</li> <li>■ Field assaults</li> </ul>	<ul style="list-style-type: none"> <li>■ Walking hard surface at 3.5 mph, <math>\geq</math>40-pound load</li> <li>■ Walking loose sand at 2.5 mph with load</li> </ul>

Note: Soldiers who are overweight, dieting, or past heat casualties are more prone to heat injuries. As a result, their activities must be closely monitored.

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